

REMARKS

Claims 1-4 and 6-11, all the claims pending in the application, stand rejected. Claims 1 and 3 are amended.

Support for the amendment to claim 1 appears at page 17, lines 17-21. Support for the amendment to claim 3 appears at page 16, lines 20-24 and page 17, lines 13-16 and in the table on page 20.

Claim Rejections - 35 USC § 103

Claims 1-2 and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaguchi et al (U.S. PGPub 2002/0064606) in view of Veerasamy et al (U.S. Patent 5,858,477) and Kato et al (WO 02/11130). This rejection is traversed for at least the following reasons.

Claim 1

Claim 1 has now been amended to expressly state that the cleaning step is conducted in two steps, a first step of cleaning with ultra pure water and a second step of cleaning with isopropyl alcohol. The two step cleaning process ensures complete removal of foreign material and dissolution of any surface deposits of organic polymers. While ultra pure water can remove foreign matter and cause some dissolution of organic polymers, the single step is inadequate to provide an exceptionally clean surface needed for subsequent processing, such as the nitrogen plasma processing or, in the absence of plasma processing, lubricant layer deposition. The subsequent cleaning of the surface with isopropyl alcohol further conditions the surface by removing any residual polymer deposits so that it is optimally prepared for the further processing.

Sakaguchi et al

The Sakaguchi et al reference is cited by the Examiner for its teaching of the formation of a magnetic layer (32) on a disk substrate (S) and the subsequent formation of a carbon-based protection layer (33) by plasma CVD using a mixed gas of a hydrocarbon-based gas and a nitrogen gas without containing an inactive gas at a temperature of 250°C. Notably, Sakaguchi

et al also teaches at pages 25-27 in connection with Figs. 6 and 7 the washing of the processed recording medium with ultra pure water, with or without irradiation (see Table 11).

However, there is no teaching or suggestion that a two step cleaning process should be conducted, especially a cleaning process following nitrogen plasma processing and before lubricant deposition.

Veerasamy et al

Veerasamy et al is cited for its teaching of an acetylene-nitrogen system to deposit diamond-like carbon layers using P-CVD over magnetic recording media films and for the teaching that nitrogen may be continuously fed with the acetylene to nitrogenate the resultant diamond-like carbon film. However, Veerasamy et al does not teach a two step cleaning process using ultra pure water followed by isopropyl alcohol, as now claimed for the protection layer coated disk, with or without nitrogen plasma processing of the protection layer.

Suzuki et al

The Examiner admits that neither of Sakaguchi et al or Veerasamy et al fairly teach a cleaning step for the carbon-based film and looks to Suzuki et al for such teaching. However, Suzuki et al does not teach a cleaning step, but instead, teaches an analytical or inspection step. Specifically, as generally disclosed in Pages 11 - 17; after a magnetic medium is prepared, the amount of deposits on the surface can be determined by an extraction process. According to that process, as described at pages 13 and 14, the magnetic recording medium with a substrate S, magnetic layer 2, carbon protective layer 3 and lubrication layer 4 are exposed to an atmosphere of an inspection gas. The various gases are described at pages 15 and 16. As described at page 17, after exposure, an inspection solvent is applied to extract the inspection gas component that may have penetrated the sample surface. The solvent may be "any solvent" and may be one or more of methanol, ethanol, isopropyl alcohol and water. By then analyzing the composition of the solvent for the gas component, the quality of the surface material can be determined.

This teaching is not relevant for several reasons. First, it does not use the solvent for cleaning. There is no goal of removing all foreign material and polymer deposits so that the surface is exceptionally clean. The goal is to extract a representative amount of inspection gas

for analysis and comparison. There is no teaching or suggestion that all gas is removed or that all gas-containing materials are removed, or that any other material is removed. Second, it does not use isopropyl alcohol and ultra pure water in separate steps. Third, the inspection process is conducted after deposition of the lubrication layer and not beforehand, as in the present invention.

Claims 2 and 6-11

These claims would be patentable because of their dependency from claim 1, and for reasons given above.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaguchi et al (U.S. PGPub 2002/0064606) in view of Veerasamy et al (U.S. Patent 5,858,477) and Kato et al (WO 02/11130) and further in view of Suzuki et al (U.S. Patent 6,680,112).

Claim 3

Claim 3 has been placed into independent form, by incorporating the limitations of claim 1, as amended, and by specifying the conduct of the cleaning step immediately after the nitrogen plasma processing step. Further, the claim specifies the nitrogen content in the protection layer, consistent with the disclosure of the preferred embodiments.

There is no teaching or suggestion of these limitations in the patents to Sakaguchi et al, Veerasamy et al or Kato et al. Suzuki does not remedy those deficiencies. While Suzuki et al does teach the application of a nitrogen plasma to enhance adherence of a lubrication layer to a protection layer, it does not teach a cleaning step after plasma processing and before deposition of a lubrication layer, and it does not teach the nitrogen content, as claimed.

Claim 4

This claim would be patentable because it depends from claim 3, and for the reasons given for claim 3. Moreover, it expressly states that the lubrication layer is deposited on the cleaned plasma-processed surface.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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